

Small VTOL UAV Acoustics Measurement and Prediction, Phase I

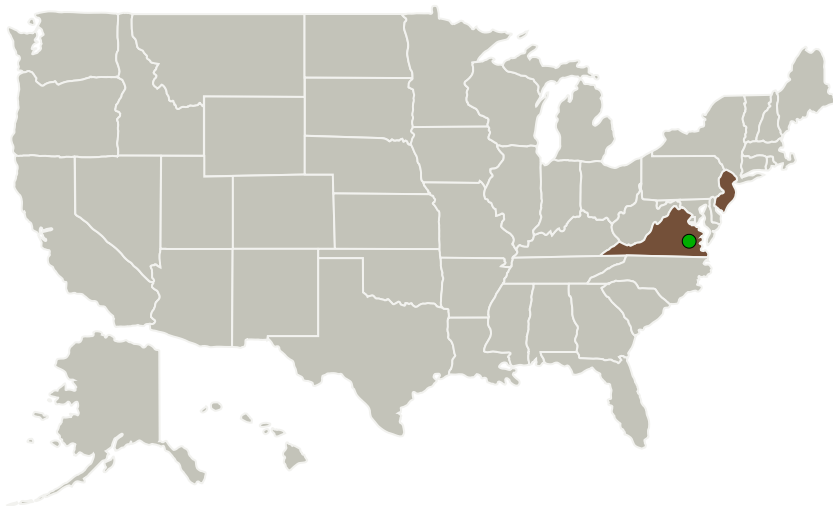
Completed Technology Project (2014 - 2014)



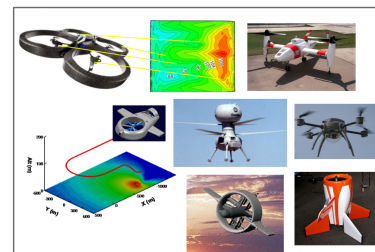
Project Introduction

Interest in civilian use of small Unmanned Aerial Vehicles (UAVs) with Vertical Takeoff and Landing (VTOL) capability has increased greatly in recent years, and is expected to grow significantly in the future. Research to date has focused on propulsion, batteries, sensors and autonomous control laws, but little attention has been paid to acoustic characteristics. The generation and propagation of noise associated with small VTOL UAVs are not well understood and prediction tools have not been developed or validated for this class of vehicles. Since public acceptance of these vehicles is crucial to their future in civilian roles, it is imperative that NASA acquire the analysis tools and an adequate understanding of the acoustic characteristics associated with these aircraft. The objective of the proposed effort is to create a base of experimental data to characterize the noise generated by this class of vehicle and then to use this data to evaluate and enhance existing rotary-wing design and analysis tools in this area.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Continuum Dynamics, Inc.	Lead Organization	Industry	Ewing, New Jersey
● Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



Small VTOL UAV Acoustics Measurement and Prediction Project Image

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Primary U.S. Work Locations

New Jersey

Virginia

Project Transitions

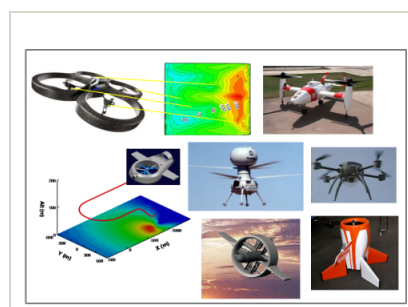
June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137710>)

Images



Project Image

Small VTOL UAV Acoustics Measurement and Prediction Project Image
(<https://techport.nasa.gov/image/131306>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Continuum Dynamics, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

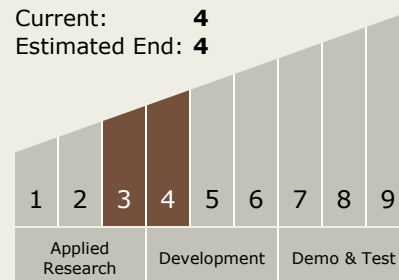
Carlos Torrez

Principal Investigator:

Daniel A Wachspress

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
 - └ TX11.1 Software Development, Engineering, and Integrity
 - └ TX11.1.8 Software Analysis and Design Tools

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System